

IN THE CLAIMS

Please amend the claims as follows.

1. (Currently Amended) An apparatus comprising:
a thermal management device;
a heat source; and
an interface disposed between the thermal management device and the heat source, the interface having a plurality of nanostructures, the nanostructures having a plurality of polymer molecules, the polymer molecules including deoxyribonucleic acid (DNA) molecules, wherein the plurality of nanostructures include first nanostructures attached to the thermal management device, and second nanostructures attached to the heat source, wherein the first nanostructures include protrusions, wherein the second nanostructures include recesses, wherein the recesses are disposed in a pattern to receive the protrusions of the first nanostructures, and wherein the molecules are to facilitate adhesion of the first and second nanostructures to each other.
2. (Original) The apparatus of claim 1, wherein the thermal management device comprises a passive cooling device.
3. (Original) The apparatus of claim 2, wherein the passive cooling device comprises at least one of a heat sink, a heat spreader, heat pipes, and a heat slug.
4. (Original) The apparatus of claim 1, wherein the thermal management device comprises an active cooling device.
5. (Original) The apparatus of claim 4, wherein the active cooling device comprises at least one of an air jet impingement device and a dielectric liquid device.
6. (Previously Presented) The apparatus of claim 1, wherein the heat source comprises a rectangular piece of silicon material.

7.-12. (Canceled)

13. (Withdrawn - Currently Amended) An apparatus comprising:

a thermal management device;

a heat source; and

an interface disposed between the thermal management device and the heat source, the interface having a plurality of nanostructures formed on the thermal management device and the heat source, the plurality of nanostructures formed on the thermal management device being coupled to the plurality of nanostructures formed on the heat source, wherein the plurality of nanostructures formed on the thermal management device and the plurality of nanostructures formed on the heat source have a plurality of molecules covalently coupling the nanostructures formed on the thermal management device and the plurality of nanostructures formed on the heat source, wherein the plurality of molecules comprises a flexible polymer molecule, and wherein the flexible polymer comprises deoxyribonucleic acid (DNA) molecules, wherein the plurality of nanostructures formed on the thermal management device includes protrusions, wherein the plurality of nanostructures formed on the heat source includes recesses, and wherein the recesses are disposed in a pattern to receive the protrusions of the first nanostructures.

14. (Withdrawn) The apparatus of claim 1, wherein the plurality of nanostructures comprises a plurality of carbon nanotubes.

15. (Withdrawn - Currently Amended) A system comprising:

a wiring board;

a memory device electrically coupled to the wiring board;

a heat source electrically coupled to the wiring board;

a thermal management device coupled to the heat source; and

an interface disposed between the thermal management device and the heat source, the interface having a plurality of nanostructures, the nanostructures having a plurality of polymer molecules, the polymer molecules including deoxyribonucleic acid (DNA) molecules, wherein the plurality of nanostructures include first nanostructures attached to the thermal management

device, and second nanostructures attached to the heat source, wherein the first nanostructures include protrusions, wherein the second nanostructures include recesses, and wherein the recesses are disposed in a pattern to receive the protrusions of the first nanostructures.

16. (Withdrawn) The system of claim 15, wherein the wiring board comprises a printed circuit board.
17. (Withdrawn) The system of claim 15, wherein the memory device comprises a flash type memory device.
18. (Withdrawn) The system of claim 15 wherein the thermal management device comprises a passive cooling device.
19. (Withdrawn) The system of claim 18, wherein the passive cooling device comprises at least one of a heat sink, a heat spreader, heat pipes, and a heat slug.
20. (Withdrawn) The system of claim 15, wherein the thermal management device comprises an active cooling device.
21. (Withdrawn) The system of claim 20, wherein the active cooling device comprises at least one of an air jet impingement device and a dielectric liquid device.
22. (Withdrawn) The system of claim 15, wherein the heat source comprises an integrated circuit (IC) die.
- 23.- 28. (Canceled)
29. (Withdrawn - Currently Amended) A system comprising:
 - a wiring board;
 - a memory device electrically coupled to the wiring board;

a heat source electrically coupled to the wiring board;
a thermal management device coupled to the heat source; and
an interface disposed between the thermal management device and the heat source, the interface having a plurality of nanostructures formed on the thermal management device and the heat source, the plurality of nanostructures formed on the thermal management device being coupled to the plurality of nanostructures formed on the heat source, wherein the plurality of nanostructures formed on the thermal management device and the plurality of nanostructures formed on the heat source have a plurality of molecules covalently coupling the nanostructures formed on the thermal management device and the plurality of nanostructures formed on the heat source, wherein the plurality of molecules comprises a flexible polymer, and wherein the flexible polymer comprises deoxyribonucleic acid (DNA) molecules, wherein the plurality of nanostructures formed on the thermal management device includes protrusions, wherein the plurality of nanostructures formed on the heat source includes recesses, and wherein the recesses are disposed in a pattern to receive the protrusions of the first nanostructures.

30. (Withdrawn - Currently Amended) A semiconductor package comprising:
a thermal management device;
an integrated circuit; and
an interface disposed between the thermal management device and the integrated circuit, the interface having a plurality of nanostructures, the nanostructures having a plurality of polymer molecules, the polymer molecules including deoxyribonucleic acid (DNA) molecules, wherein the plurality of nanostructures include first nanostructures attached to the thermal management device, and second nanostructures attached to the heat source, wherein the first nanostructures include protrusions, wherein the second nanostructures include recesses, and wherein the recesses are disposed in a pattern to receive the protrusions of the first nanostructures.

31. (Withdrawn) The semiconductor package of claim 30, wherein the thermal management device comprises a passive cooling device.

32. (Withdrawn) The semiconductor package of claim 30, wherein the thermal management device comprises an active cooling device.

33.-37. (Canceled)

38. (Withdrawn) The apparatus of claim 30, wherein the nanostructures include a plurality of carbon nanotubes.

39. (Canceled)

40. (Withdrawn - Currently Amended) An apparatus comprising:
a thermal management device;
a heat source;
a plurality of first nanostructures attached to the thermal management device; and
a plurality of second nanostructures attached to the heat source, wherein the first nanostructures are interleaved with the second nanostructures, wherein at least one of the plurality of first nanostructures and the plurality of second nanostructures includes a plurality of polymer molecules, the polymer molecules including deoxyribonucleic acid (DNA) molecules, wherein the plurality of nanostructures include first nanostructures attached to the thermal management device, and second nanostructures attached to the heat source, wherein the first nanostructures include protrusions, wherein the second nanostructures include recesses, and wherein the recesses are disposed in a pattern to receive the protrusions of the first nanostructures.

41.-49. (Canceled)

50. (Currently Amended) The apparatus of claim [[49]] 1, wherein at least one of the first and second nanostructures includes carbon nanotubes.

51. (Previously Presented) The apparatus of claim 50, wherein each of the nanostructures has a diameter of 0.6 to 1.8 nanometers.